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1886	h m	1886	h m	1886	h m
June 19	5 40·4	June 23	8 18·2	June 27	10 57·3
20	6 19·1	24	8 57·9	28	11 37·1
21	6 58·8	25	9 37·7	29	12 16·9
22	7 38·5	26	10 17·5	30	12 56·8

Ephemeris of the Satellites of Uranus, 1886. By A. Marth.

P, angle of position of the minor axes of the apparent orbits.

a, b, major and minor semi-axes of the apparent orbits.

$u-$U, longitudes of the satellites in their orbits, reckoned from the points which are in superior conjunction with the planet or in opposition to the Earth.

U + 180°, planetocentric longitude of the Earth reckoned in the assumed plane of the orbits from the ascending node on the celestial equator.

B, planetocentric latitude of the Earth above the plane of the orbits, the ascending node N and inclination J to the equator of 1880·0 are assumed to have the values

$$\text{N} = 165^\circ{\cdot}770, \qquad \text{J} = 75^\circ{\cdot}210.$$

		Ariel.				*Umbriel.*			
Greenwich Noon	P	a_1	b_1	u_1-U	Diff.	a_2	b_2	u_2-U	Diff.
1886	°	"	"	°	°	"	"	°	°
Jan. 13	284·96	14·67	+5·35	50·41	1428·47	20·43	+7·46	161·93	868·75
23	284·97	14·80	5·39	38·88	·45	20·62	7·50	310·68	·73
Feb. 2	284·99	14·92	5·40	27·33	·42	20·79	7·52	99·41	·72
12	285·01	15·03	5·38	15·75	·39	20·94	7·49	248·13	·69
22	·04	15·12	5·34	4·14	·36	21·07	7·44	36·82	·67
Mar. 4	·07	15·19	5·27	352·50	·34	21·17	7·35	185·49	·65
14	·11	15·24	5·19	340·84	·31	21·23	7·23	334·14	·63
24	285·14	15·26	+5·09	329·15	·29	21·26	+7·09	122·47	·62
April 3	·17	15·26	4·98	317·44	·26	21·25	6·94	271·39	·61
13	·20	15·22	4·87	305·70	·25	21·21	6·78	60·00	·60
23	·22	15·17	4·75	293·95	·23	21·13	6·62	208·60	·60
May 3	·24	15·09	4·64	282·18	·23	21·02	6·47	357·20	·60
13	·26	14·99	4·55	270·41	·22	20·88	6·33	145·80	·60
23	·27	14·88	4·46	258·63	1428·22	20·72	6·22	294·40	868·60
June 2	285·27	14·75	+4·40	246·85		20·55	+6·13	83·00	

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		Titania.				*Oberon.*				
1886	a_3	b_3	u_3-U	Diff.	a_4	b_4	u_4-U	U	B
	″	″	°	°	″	″	°	°	°
Jan. 13	33·51	+12·23	181·70	413·53	44·82	+16·36	76·22	3·28	+21·41
23	33·81	12·31	235·23	·52	45·22	16·46	343·62	3·30	21·35
Feb. 2	34·10	12·33	288·75	·50	45·60	16·49	251·01	3·33	21·20
12	34·35	12·29	342·25	·49	45·93	16·44	158·39	3·37	20·96
22	34·56	12·20	35·74	·48	46·21	16·31	65·75	3·42	20·66
Mar. 4	34·72	12·05	89·22	·46	46·43	16·11	333·09	3·48	20·30
14	34·83	11·86	142·68	·45	46·58	15·86	240·43	3·54	19·90
24	34·87	+11·63	196·13	·45	46·64	+15·55	147·76	3·60	+19·48
April 3	34·86	11·38	249·58	·44	46·62	15·22	55·09	3·67	19·05
13	34·79	11·12	303·02	·44	46·52	14·87	322·42	3·73	18·64
23	34·66	10·86	356·46	·45	46·34	14·52	229·75	3·78	18·26
May 3	34·47	10·61	49·91	·45	46·10	14·19	137·09	3·83	17·93
13	34·25	10·39	103·36	·46	45·80	13·89	44·43	3·86	17·66
23	33·99	10·20	156·82	413·46	45·46	13·64	311·78	3·88	17·46
June 2	33·71	+10·05	210·28		45·08	+13·44	219·14	3·89	+17·34

The values of P, *a*, *b*, and $u-$U are to be interpolated for the times for which the apparent positions of the satellites are required, the equation of light being already taken into account. The position-angles *p* and distances *s* are then found by means of the equations

$$s \sin(p-\mathrm{P}) = a \sin(u-\mathrm{U}),$$
$$s \cos(p-\mathrm{P}) = b \cos(u-\mathrm{U}).$$

The satellites move in the direction of *in*creasing position-angles, and will be at their greatest elongations, and at their conjunctions with the centre of the planet, at the following Greenwich Mean Times:—

Ariel.

1886	N. $p=$ P+90°	S. P−90°		N.	S.		N.	S.
	h	h		h	h		h	h
			Mar.	7 4·9	8 11·2	Apr.	11 11·8	12 18·0
Feb. 2	10·5	3 16·8		9 17·4	10 23·6		14 0·2	15 6·5
4	23·0	6 5·3		12 5·8	13 12·1		16 12·7	17 19·0
7	11·5	8 17·7		14 18·3	16 0·6		19 1·2	20 7·5
10	0·0	11 6·2		17 6·8	18 13·1		21 13·7	22 20·0
12	12·5	13 18·7		19 19·3	21 1·6		24 6·2	25 8·5
15	1·0	16 7·2		22 7·8	23 14·1		26 14·7	27 21·0
17	13·4	18 19·7		24 20·3	26 2·5		29 3·2	30 9·5
20	1·9	21 8·2		27 8·8	28 15·0	May	1 15·7	2 22·0
22	14·4	23 20·7		29 21·3	31 3·5		4 4·2	5 10·4
25	2·9	26 9·2	Apr.	1 9·8	2 16·0		6 16·7	7 22·9
27	15·4	28 21·6		3 22·3	5 4·5		9 4·2	10 11·4
Mar. 2	3·9	3 10·1		6 10·8	7 17·0		11 17·7	12 23·9
4	16·4	5 22·6		8 23·3	10 5·5		14 6·2	15 12·4

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Umbriel.

N.		S.		N.		S.		N.		S.	
1886.	h		h		h		h		h		h
Feb. 6	0·9	8	2·6	Mar. 11	4·5	13	6·3	Apr. 13	8·3	15	10·0
10	4·3	12	6·0	15	8·0	17	9·7	17	11·8	19	13·5
14	7·8	16	9·5	19	11·5	21	13·2	21	15·2	23	17·0
18	11·2	20	13·0	23	14·9	25	16·7	25	18·7	27	20·4
22	14·7	24	16·4	27	18·4	29	20·1	29	22·2	M. 1	23·9
26	18·1	28	19·9	31	21·9	A. 2	23·6	May 4	1·6	6	3·4
Mar. 2	21·6	4	23·3	Apr. 5	1·3	7	3·1	8	5·1	10	6·8
7	1·1	9	2·8	9	4·8	11	6·6	12	8·6	14	10·3

Titania.

1886 $p=$	Super. Conj. P h		N. Elong. P+90° h		Infer. Conj. P+180° h		S. Elong P−90° h
Jan. 26	0·4	Jan. 28	4·6	Jan. 30	8·9	Feb. 1	13·1
Feb. 3	17·4	Feb. 5	21·6	Feb. 8	1·8	10	6·1
12	10·3	14	14·5	16	18·8	18	23·0
21	3·3	23	7·5	25	11·7	27	16·0
Mar. 1	20·2	Mar. 4	0·5	Mar. 6	4·7	Mar. 8	8·9
10	13·2	12	17·4	14	21·7	17	1·9
19	6·1	21	10·4	23	14·6	25	18·9
27	23·1	30	3·4	Apr. 1	7·6	Apr. 3	11·9
Apr. 5	16·1	Apr. 7	20·3	10	0·6	12	4·8
14	9·1	16	13·3	18	17·6	20	21·8
23	2·1	25	6·3	27	10·5	29	14·8
May 1	19·0	May 3	23·3	May 6	3·5	May 8	7·8
10	12·0	12	16·2	14	20·5	17	0·7
19	5·0	21	9·2	23	13·5	25	17·7
27	21·9	30	2·2	June 1	6·4	June 3	10·7

Oberon.

1886	Super. Conj. h		N. Elong. h		Infer. Conj. h		S. Elong. h
Jan. 23	14·7	Jan. 26	23·5	Jan. 30	8·3	Feb. 2	17·0
Feb. 6	1·8	Feb. 9	10·6	Feb. 12	19·4	16	4·2
19	13·0	22	21·8	26	6·6	Mar. 1	15·4
Mar. 5	0·2	Mar. 8	8·9	Mar. 11	17·7	15	2·5
18	11·3	21	20·1	25	4·9	28	13·7
31	22·5	Apr. 4	7·3	Apr. 7	16·1	Apr. 11	0·9
Apr. 14	9·7	17	18·5	21	3·3	24	12·1
27	20·9	May 1	5·7	May 4	14·5	May 7	23·3
May 11	8·1	14	16·9	18	1·7	21	10·5
24	19·8	28	4·1	31	12·9	June 3	21·7